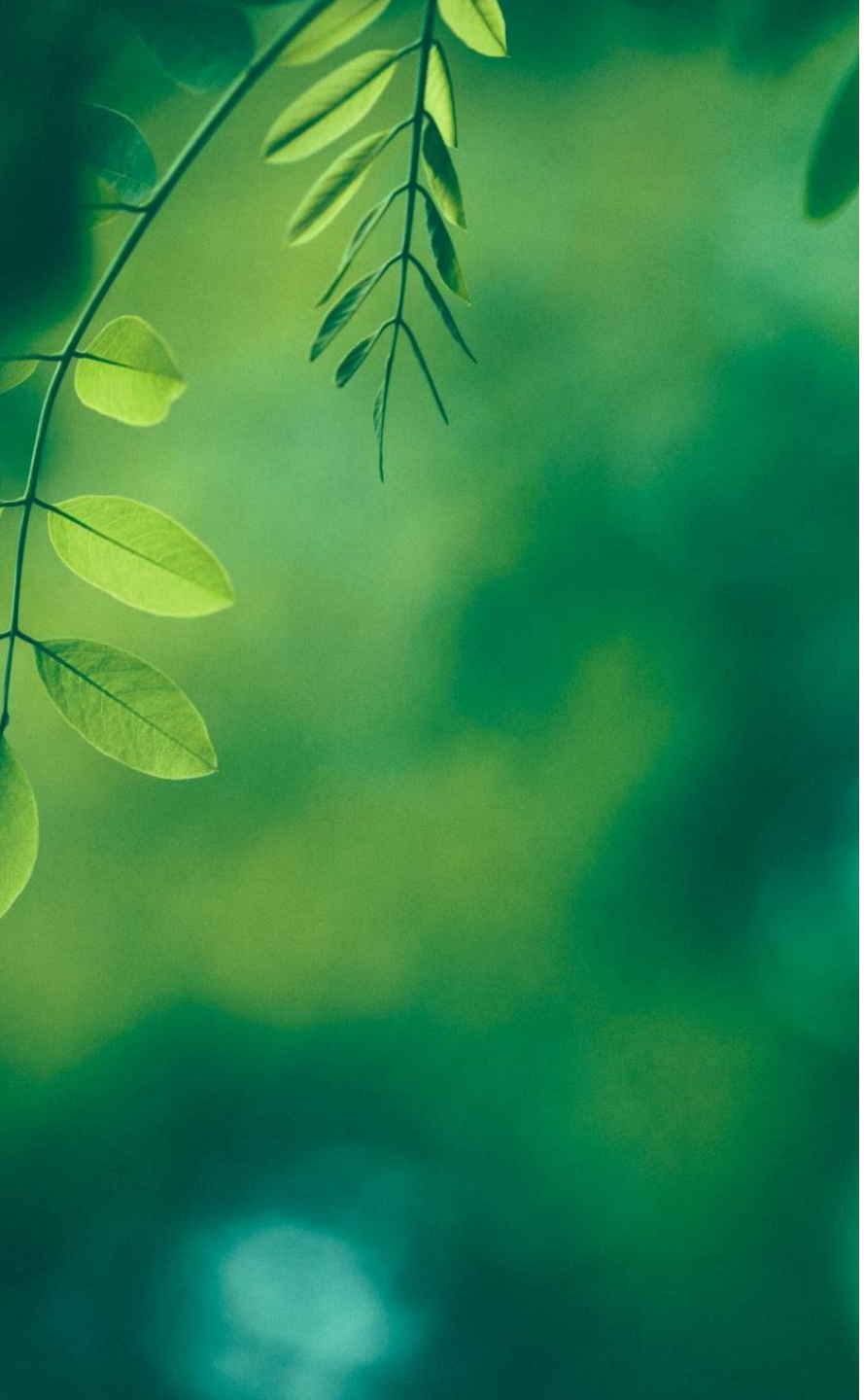

DHAKA WITHOUT NATURE?

RETHINKING NATURAL RIGHTS LED URBAN SUSTAINABILITY

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Sabrin Sultana
Md. Fuad Hassan

27 July 2025, Dhaka

What If You Couldn't Breathe in Your Own City?

Between 1980 and 2025, Dhaka's rapid urbanization led to green space loss and built-up expansion, causing:

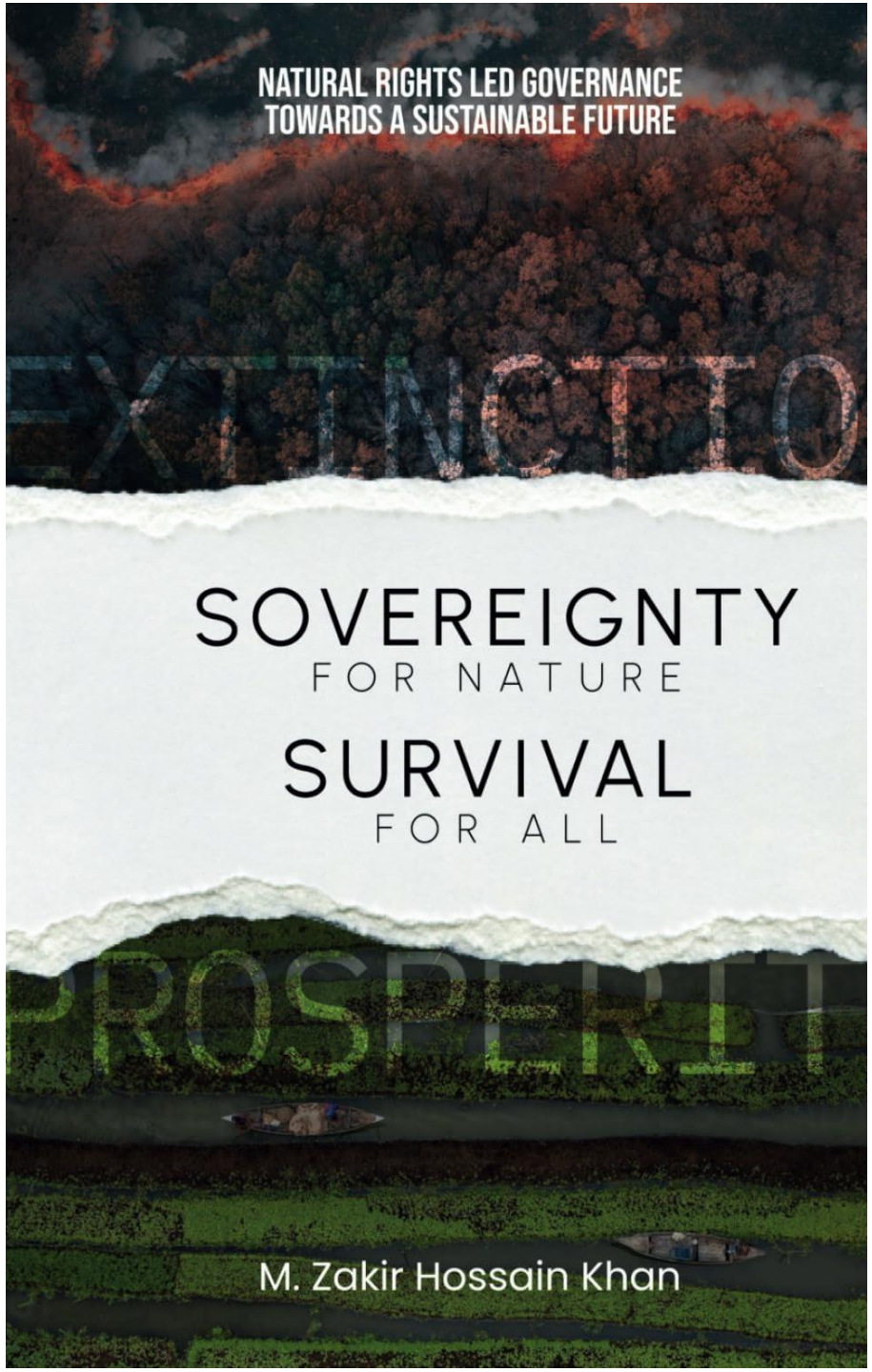
Severe ecological loss

Shrinking green and blue spaces

Dhaka July Temp.

- 1980 – 28°C (average)
- 2025 – 32°C (average)

Has Dhaka grown at the cost of **natural rights** to breathe?
Lets' see!



What are the Natural Rights?

Life or Self-dignity of Lives and Nature – Nature has the right to exist with dignity and ecological integrity

Liberty or Freedom – Nature must be free from exploitation and able to function naturally

Social Harmony & Justice – Nature deserves balanced coexistence, institutional protection, and access to justice

Indigenous Knowledge – Recognizes the role of traditional communities in conserving and governing ecosystems.

STATE OF NATURAL RIGHTS IN DHAKA

Life or Self-dignity of Lives and Nature:

75% wetland loss over past 30 years (CEGIS); green cover <10% *(BUET/JICA).*

Nature's Liberty or Freedom

65 out of 95 canals encroached *(IWM)*; Buriganga's pollution level (*BOD*) is 7.2 mg/L, above the threshold of 2 mg/l. *(DoE)*

Social Harmony & Justice

Green space is unequally distributed. Slums <0.2 m^2 green/person vs. 5+ m^2 in elite zones *(BUET/WB).*

Indigenous Knowledge

Wetland communities excluded from DAP; traditional practices erased (BIP).

RATIONALE FOR THE STUDY

Dhaka's unplanned growth has undermined its natural rights.

This study reveals-

- **Current state of environment and ecosystem.**
- **Emergence of sustainability for urban prosperity through the lens of natural rights - existence, liberty, and social harmony.**

OBJECTIVES OF THE STUDY

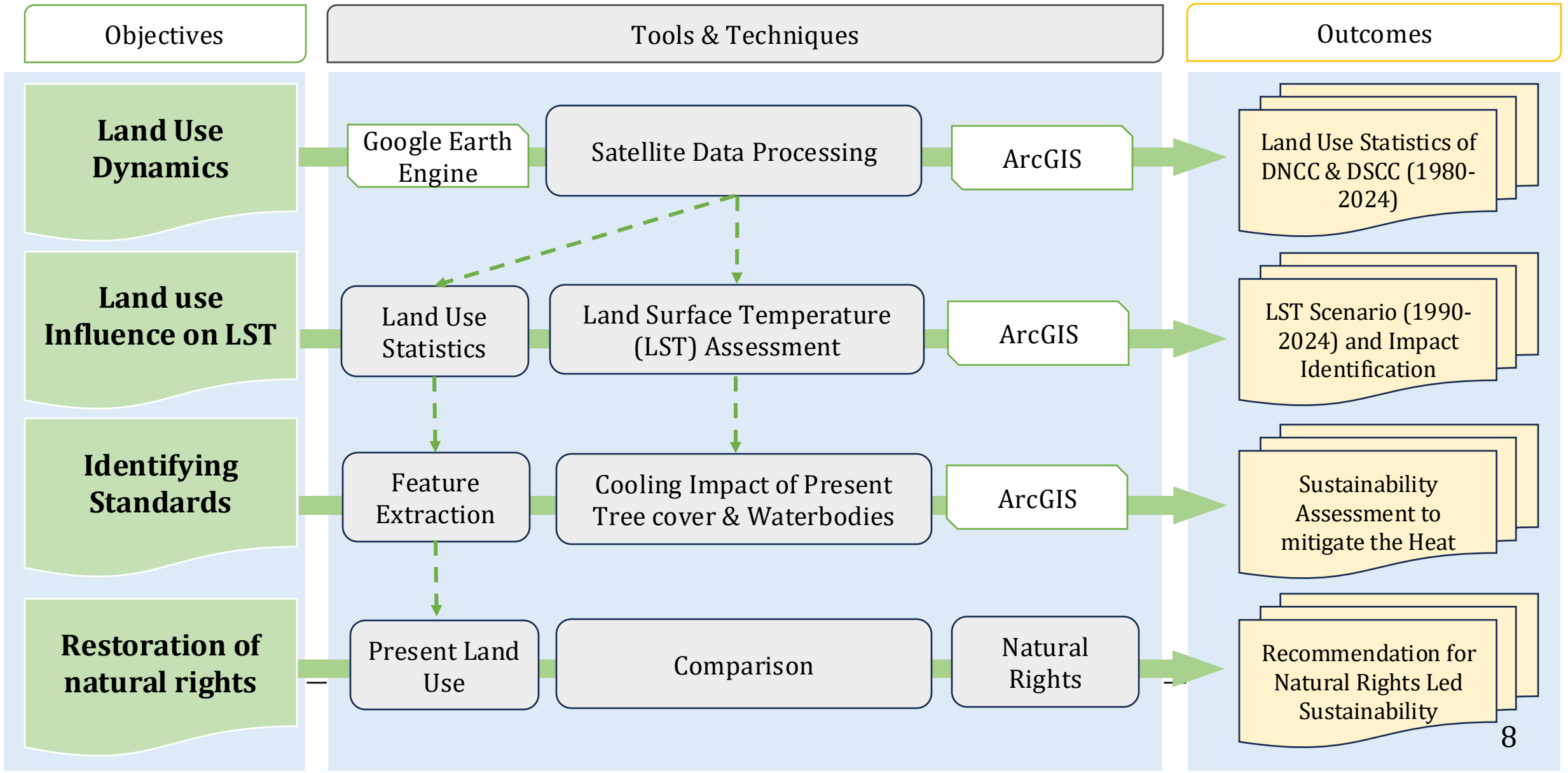
Overall Objective:

Evaluate the State of nature rights in Dhaka through the lens of natural rights.

Specific Objectives:

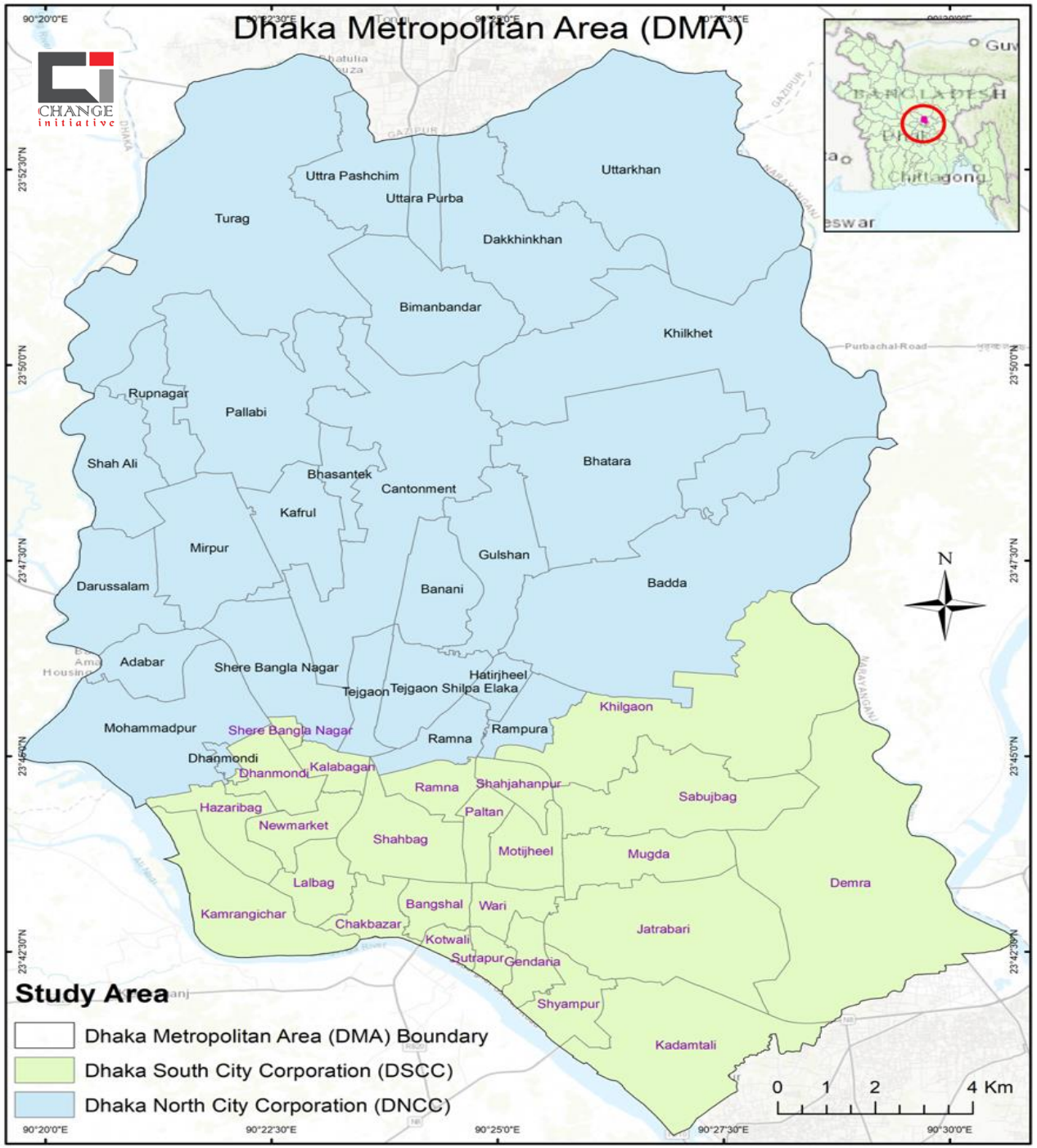
- Mapping the shift of land use across Dhaka in different directions, specified to DNCC and DSCC, between 1980 and 2024.
- Examining the effects of land use on surface temperatures at the thana level, focusing on DNCC and DSCC.
- Assessing green and blue standards to build evidence for setting temperature targets.
- Proposing actionable directions for restoring a balanced, rights-based relationship between nature and urban sustainability.

METHODOLOGICAL FRAMEWORK



WHAT WE COVERED?

Land Use Class	Land/Features Covered	Standard Value Consideration	Standard Unit / Description	Source
Tree Cover	Street trees, park trees, institutional gardens, urban forest patches	≥ 9 m^2 per capita	Minimum Tree Cover per person	WHO, 2010
Built-up Area	Buildings, roads, flyovers, rooftops, pavements, commercial zones, residential blocks, transport terminals	≤ 50%	Maximum percentage of total land area	RAJUK
Waterbody	Wetlands, ponds, lakes, rivers, canals	≥ 4.5 m^2 per capita	Minimum blue space per person	Toufiq, 2019
Grass / Agricultural Land	Grasslands, crop fields, farmlands, fallow agricultural land, playing fields, open green spaces	Trend Analysis		
Vacant/Barren Land	Empty plots, construction sites, partially developed land			



STUDY SCOPES

Dhaka Metropolitan Areas have been chosen for this study. Considerations were

- Dhaka is one of the Highly Air Polluted City
- Ranked as the third least livable city globally (with an index[1] of 41.7 out of 100)
- Over populated city
- Examined the extent of violation s of the natural rights.

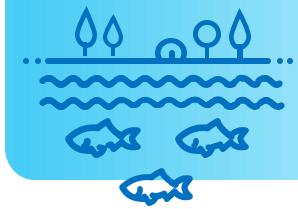
Dhaka Metropolitan Area

- Dhaka North City Corporation (DNCC) — **26 thanas**
- Dhaka South City Corporation (DSCC) — **24 thanas**

Result and Findings

Only **6** among **50** thanas meets **WHO**'s minimum threshold of 9 m^2 of Tree cover per person.

Tree Cover



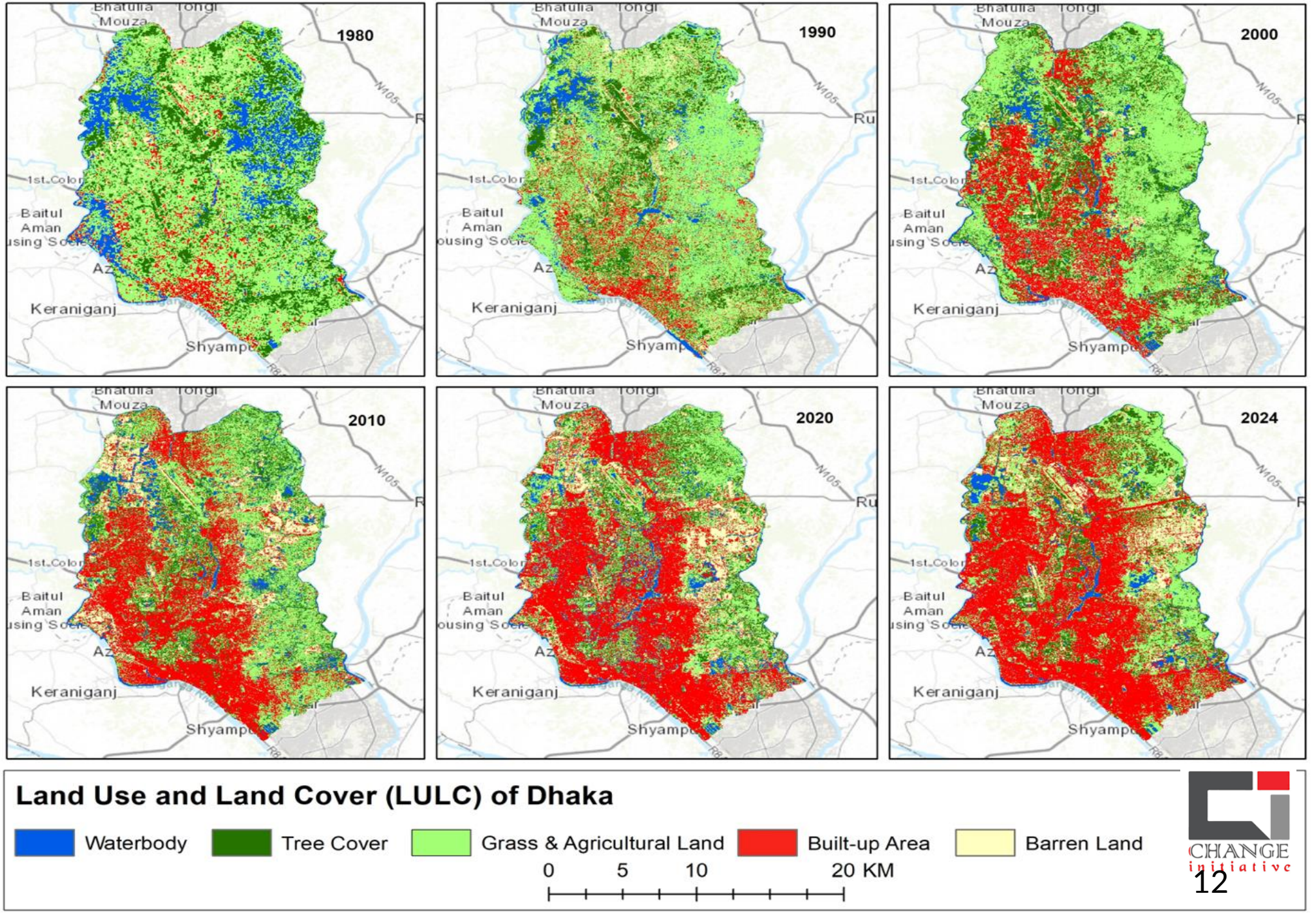
Only **6** among **50** thanas meets minimum threshold of 4.5 m^2 waterbody per person

Waterbody

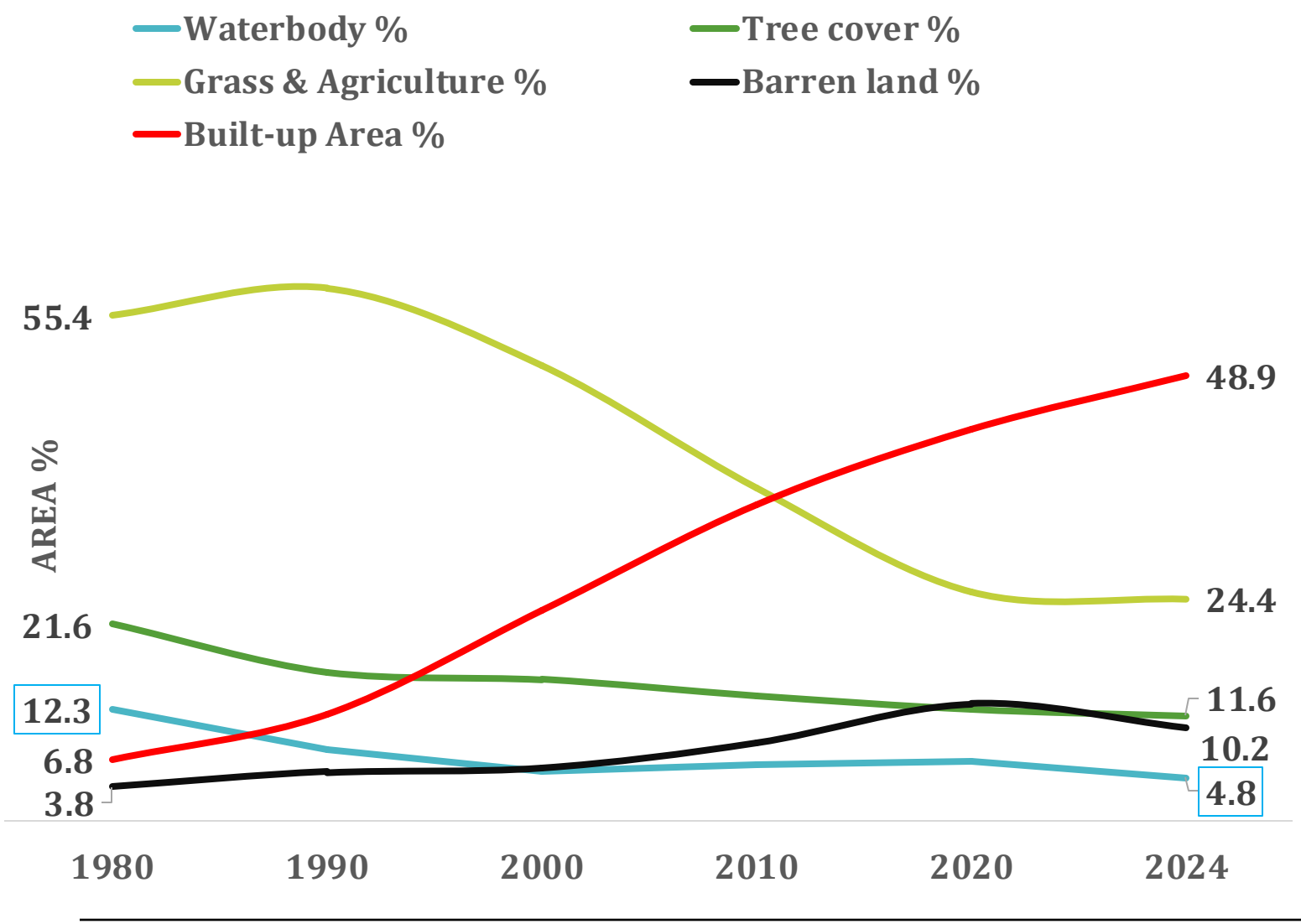
Only **13** among 50 thanas have built-up area below maximum threshold of 50% as of **RAJUK**.

Built-up areas

HOW DHAKA IS GRABBING NATURE'S SUSTAINABILITY?



Land Use Trend (1980-2024)

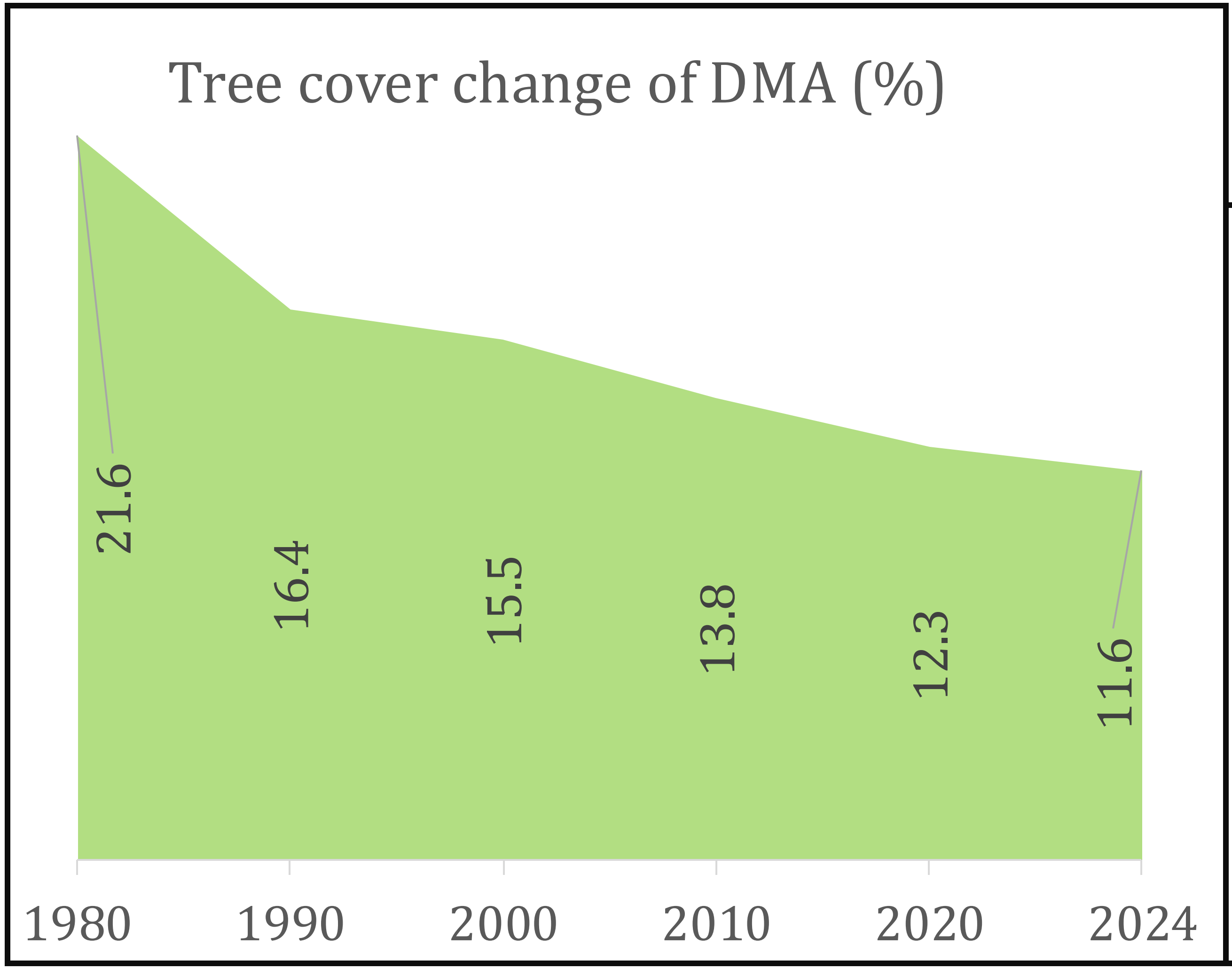


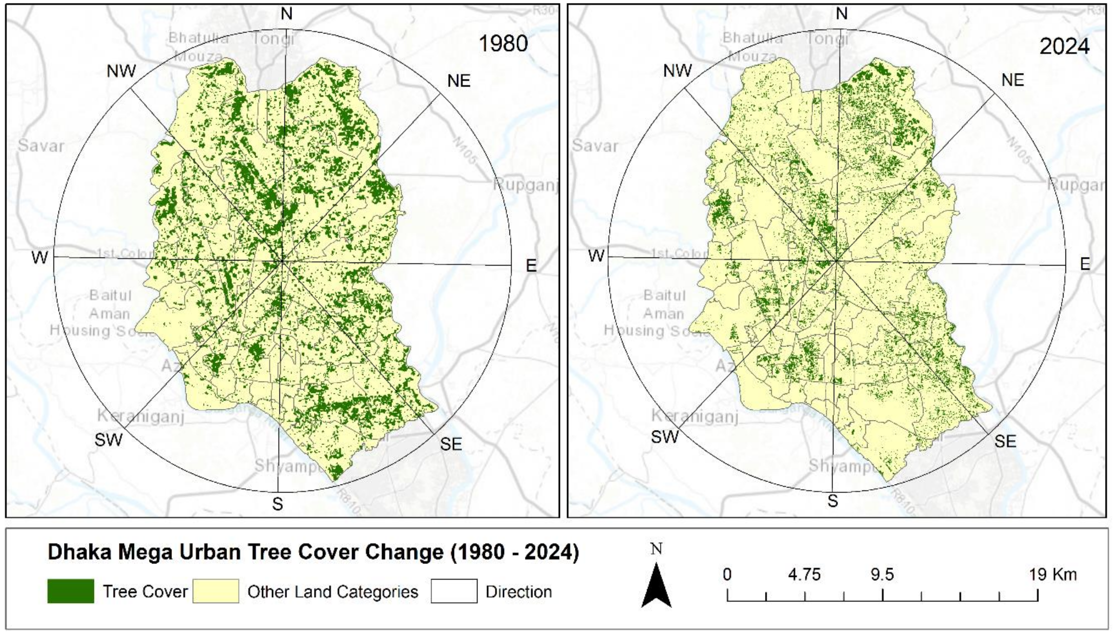
In last four decades-

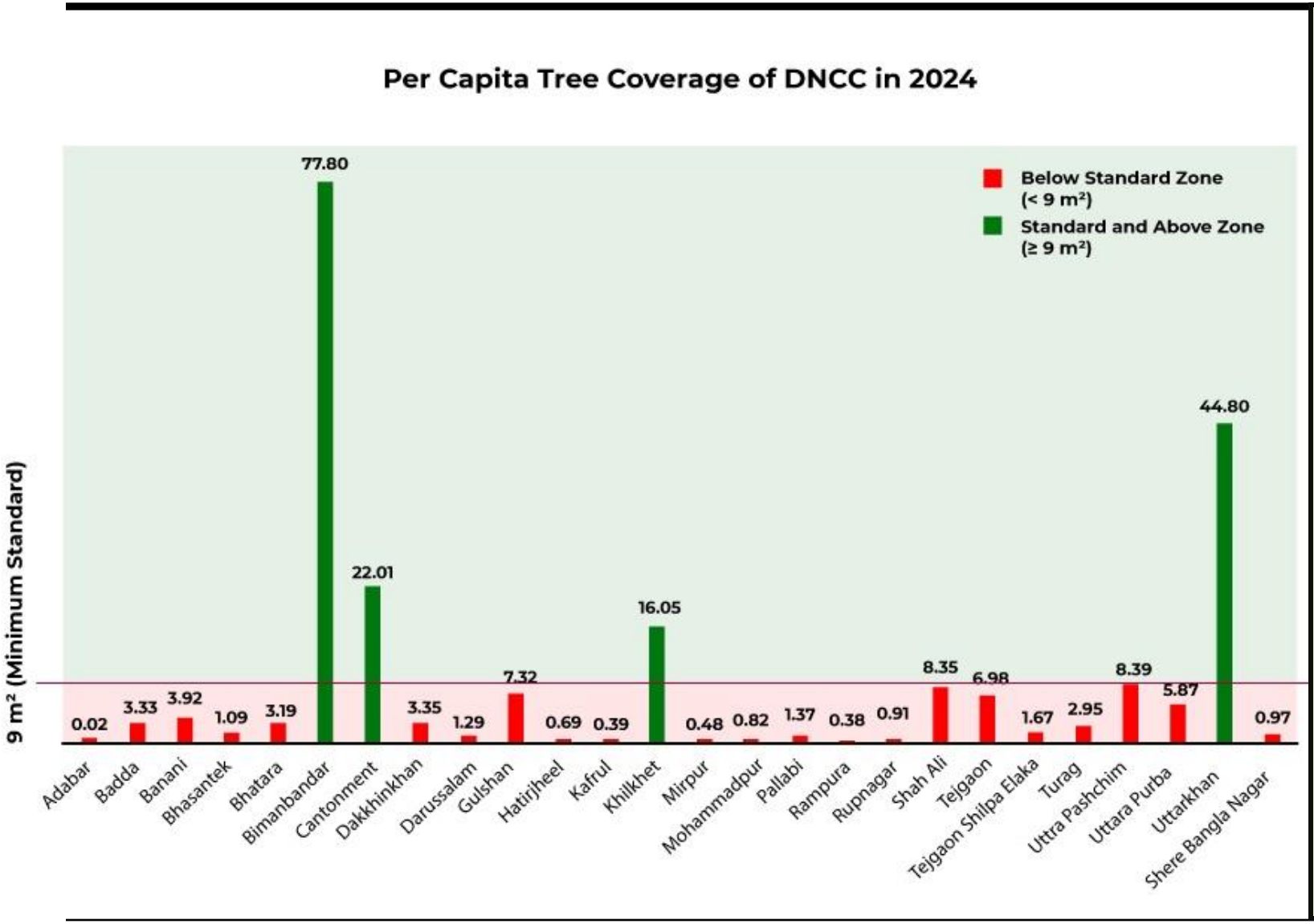
- **Dhaka lost half of its tree cover**
- **We lost 56% of our grass and agricultural land**
- **Barren Land increased approx. 2.5 times**
- **Built-up area increased 7 times.**
- **60% of waterbody has been encroached since 1980s in Dhaka**

LAND USE CHANGE OF DHAKA CITY: TREE COVERAGE

Tree cover decreased about 2 times more

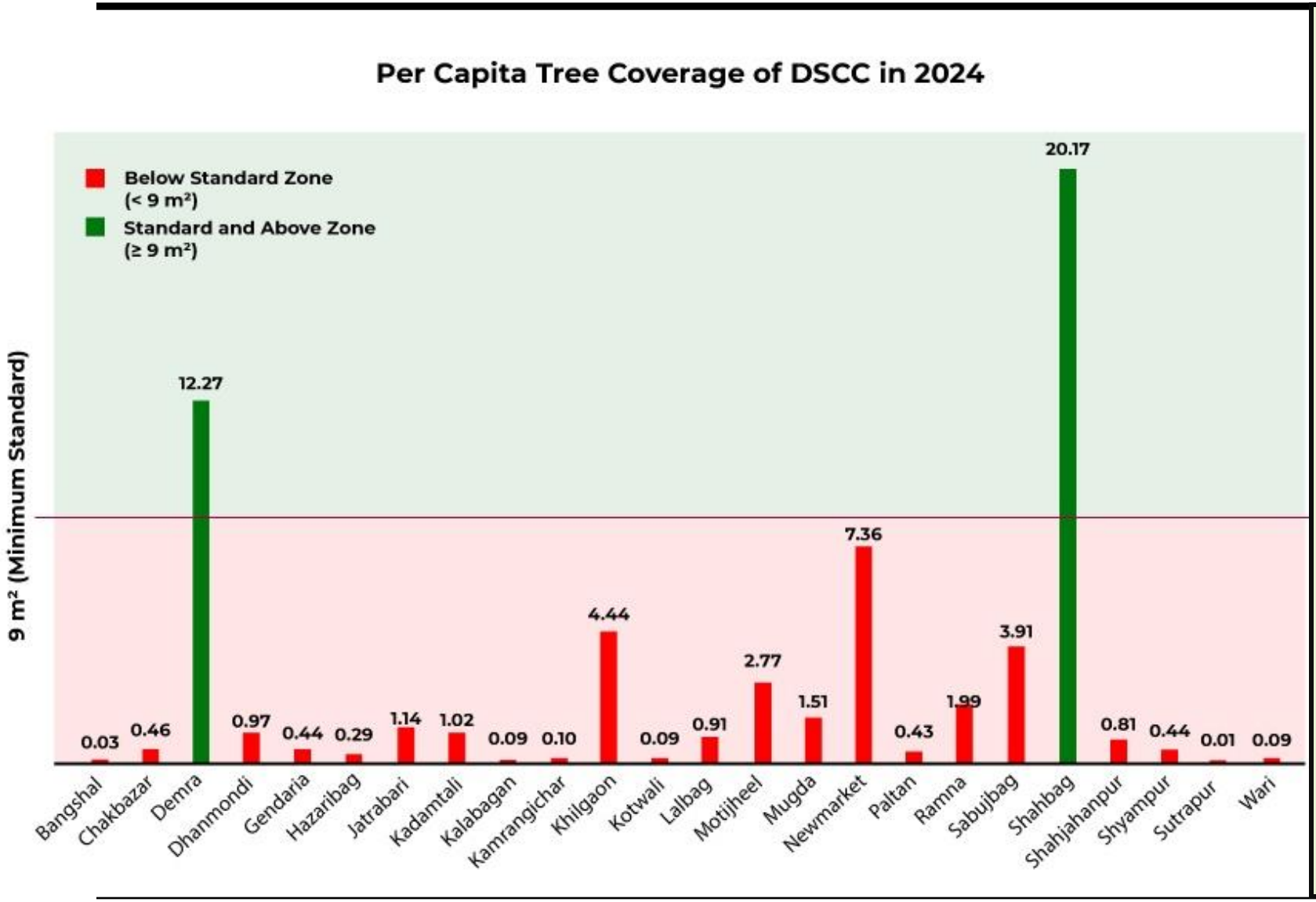






Currently-

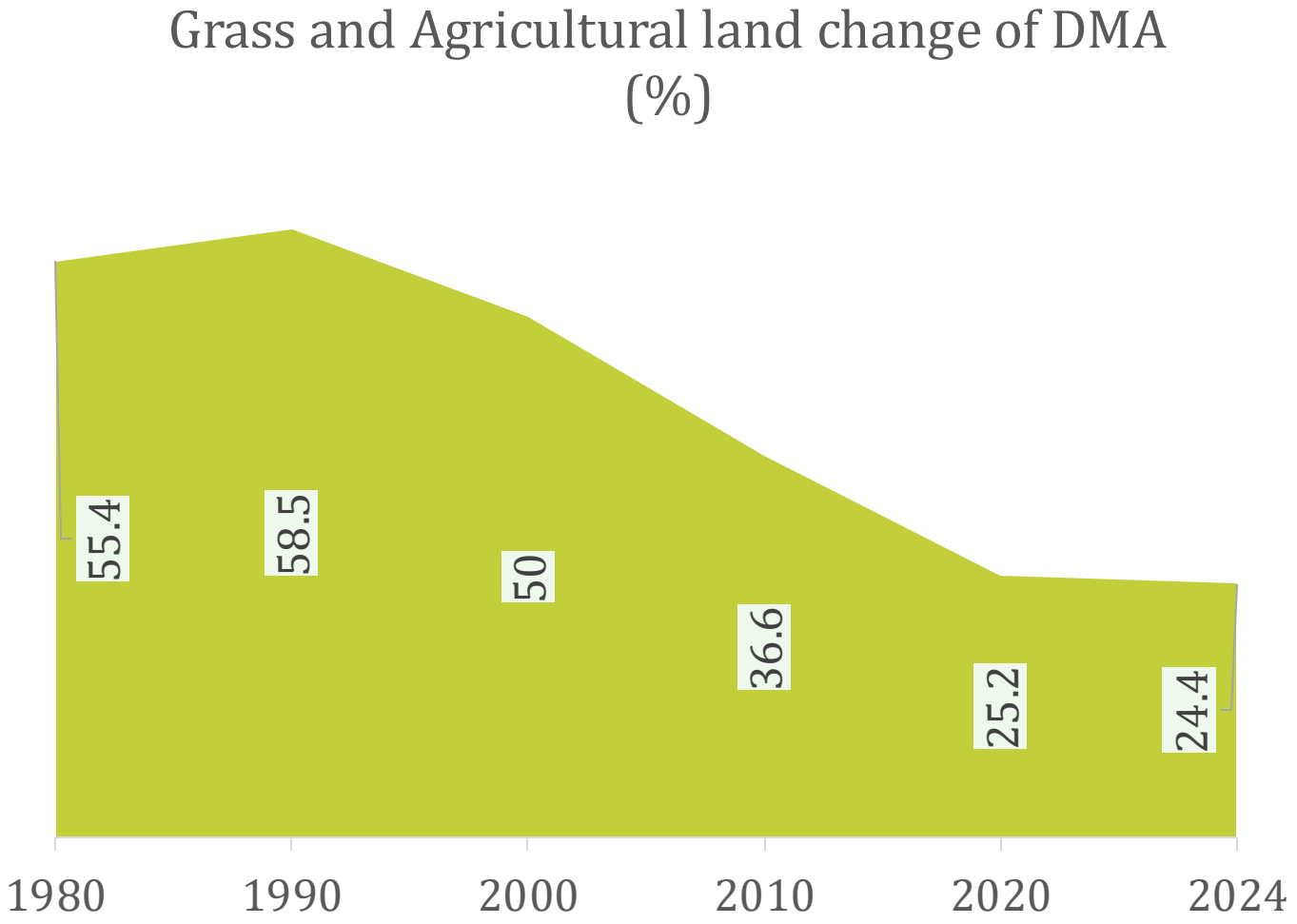
- DNCC's average tree cover is just **4.23 m^2 per person**, only half of the minimum standard (**9 m^2**).
- **22** out of 26 thanas in DNCC fall short of the minimum tree cover benchmark.
- Only **4 thanas- Bimanbandar(77.80 m^2), Uttarkhan (44.80 m^2), Cantonment(22.01 m^2), and Khilkhet(16.05 m^2)** contain minimum standard.
- **Adabar(0.02 m^2), Rampura(0.38 m^2), and Kafrul(0.39 m^2)** have least per capita tree cover.



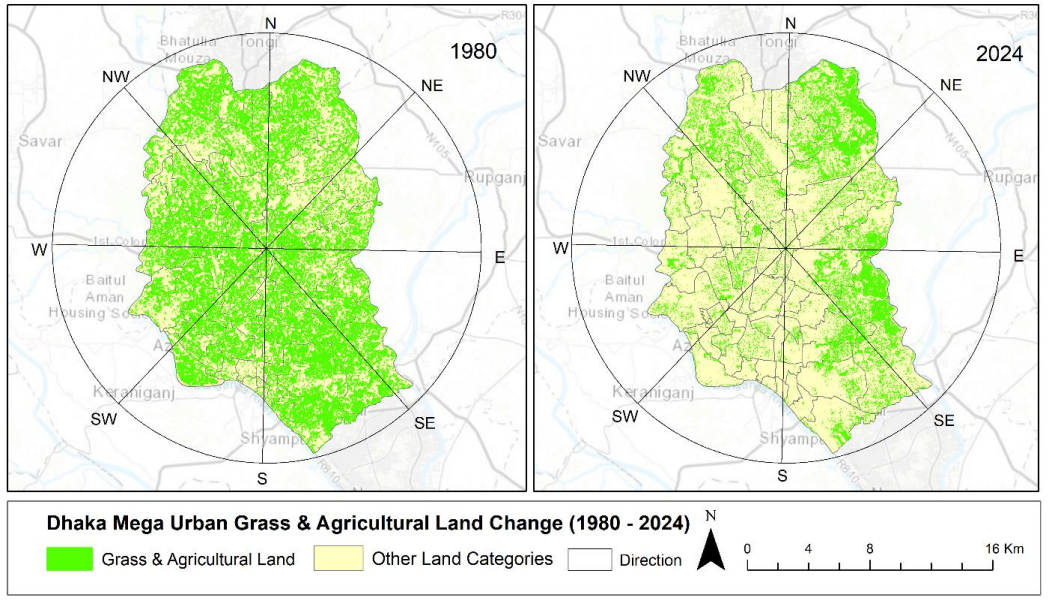
Currently-

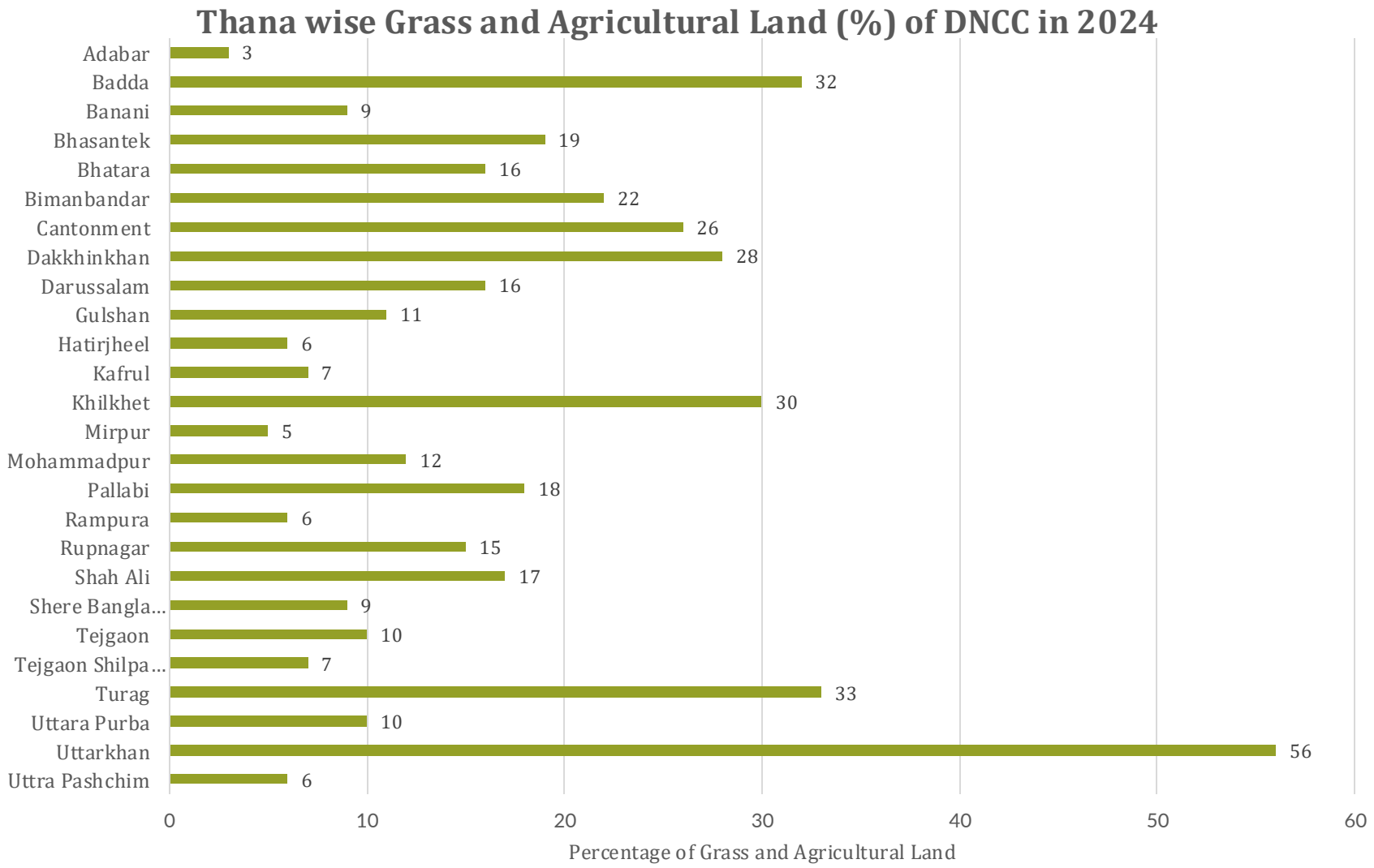
- DSCC's average tree cover is just **2.33 m^2 per person**, only one fourth of minimum standard (**9 m^2**).
- **22** out of 24 thanas in DSCC fall short of the minimum tree cover benchmark.
- Only **2 thanas- Shahbag(20.17 m^2) and Demra(12.27m^2)** contain minimum standard.
- **Sutrapur(0.01m^2), Bangshal(0.03m^2), Kalabagan(0.09 m^2), Kotwali(0.09m^2)** and **Wari(0.09 9 m^2)** barely have any tree.

GRASS AND AGRICULTURAL LAND CHANGE



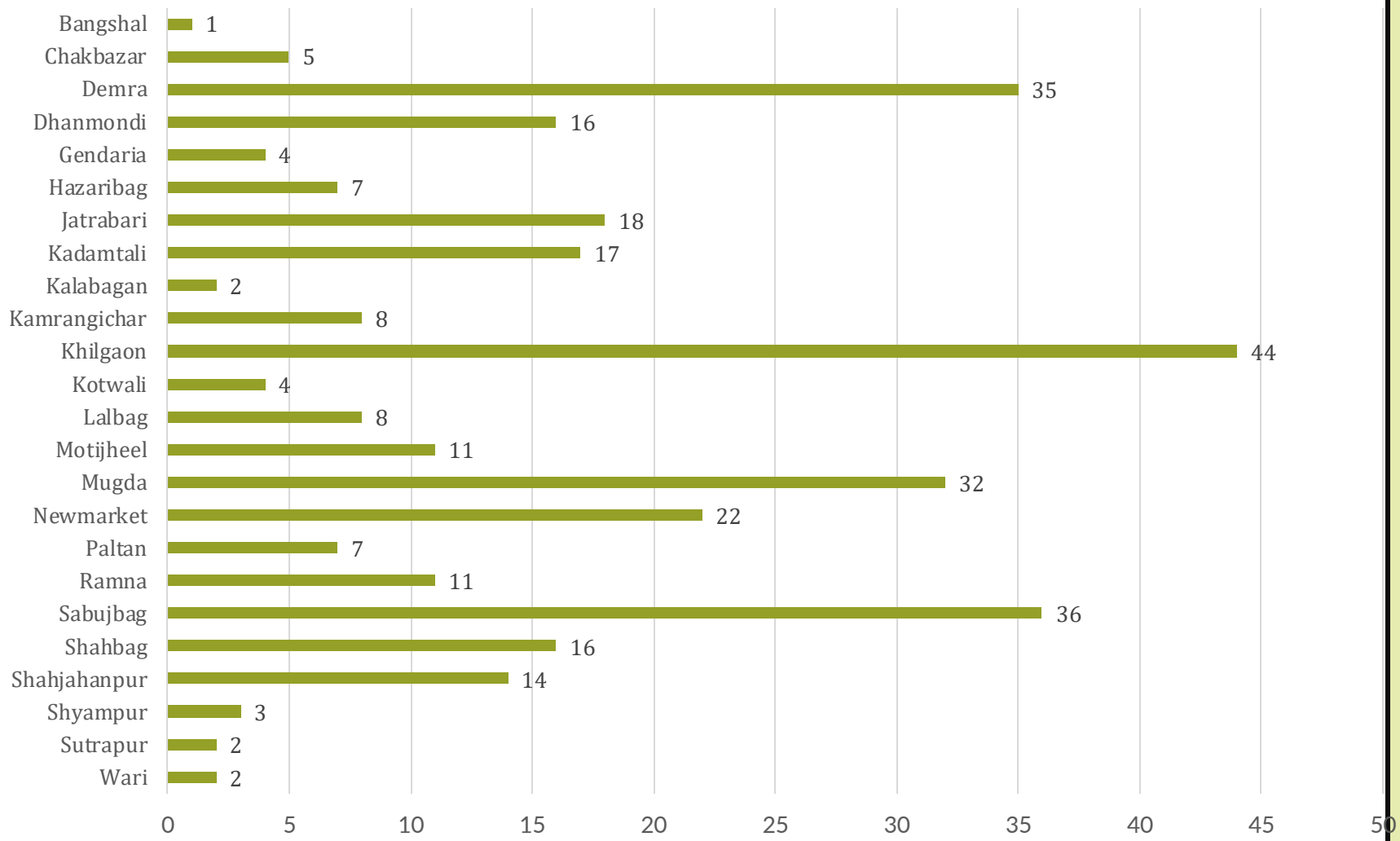
From 55.4% to 24.4%— Dhaka's Grass and Agricultural lands have shrunk since 1980.





Currently-

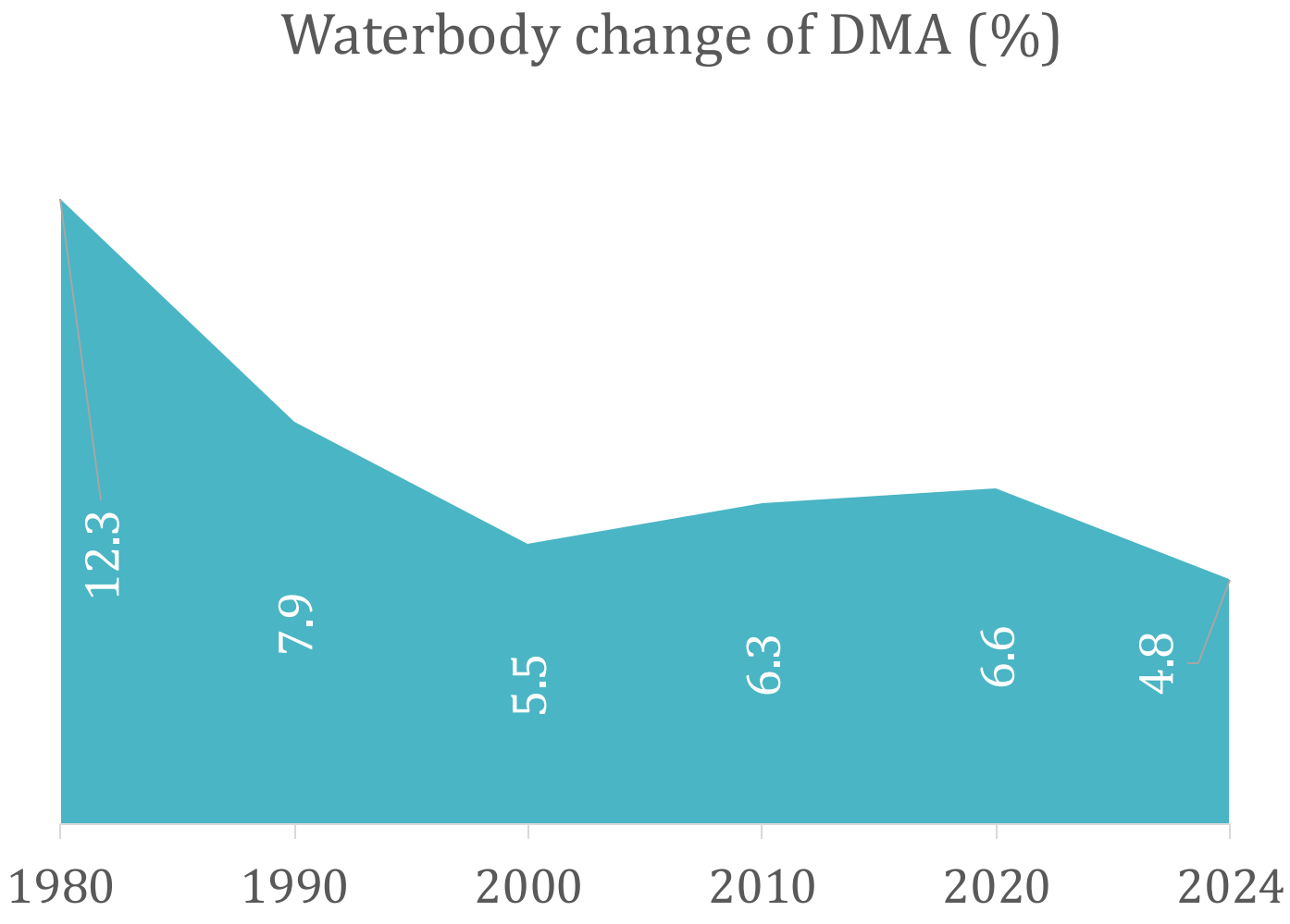
- **Uttarkhan (56%), Turag (33%) and Badda (32%) -** the last few zones where grass and agricultural land has survived.
- **Adabar (3%), Hatirjheel (6%) and Uttar Paschim (6%)** have very little Grass/ Agricultural land.



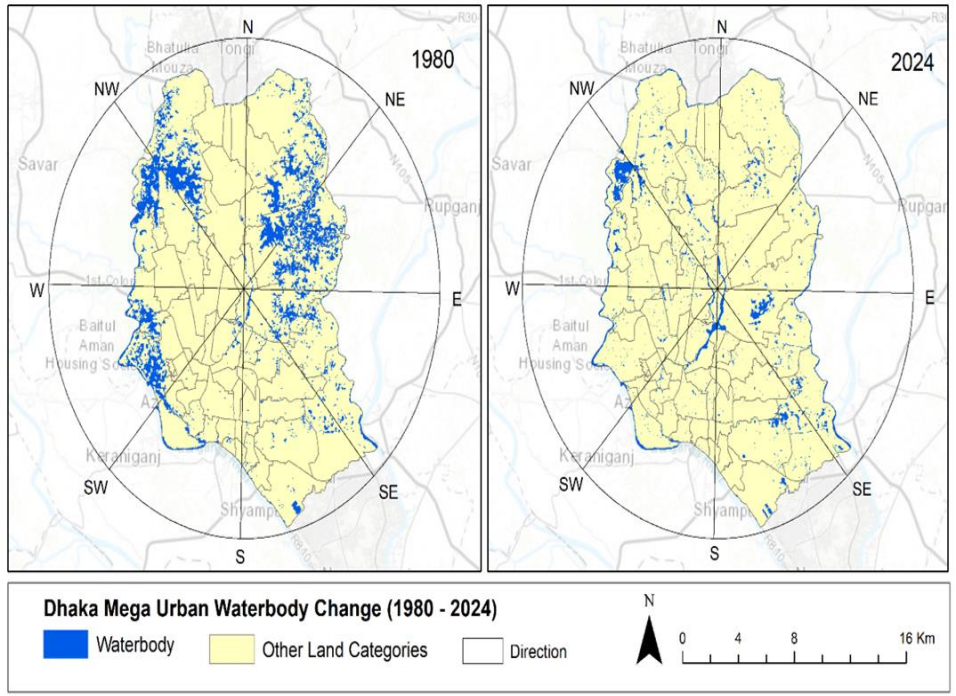
Currently-

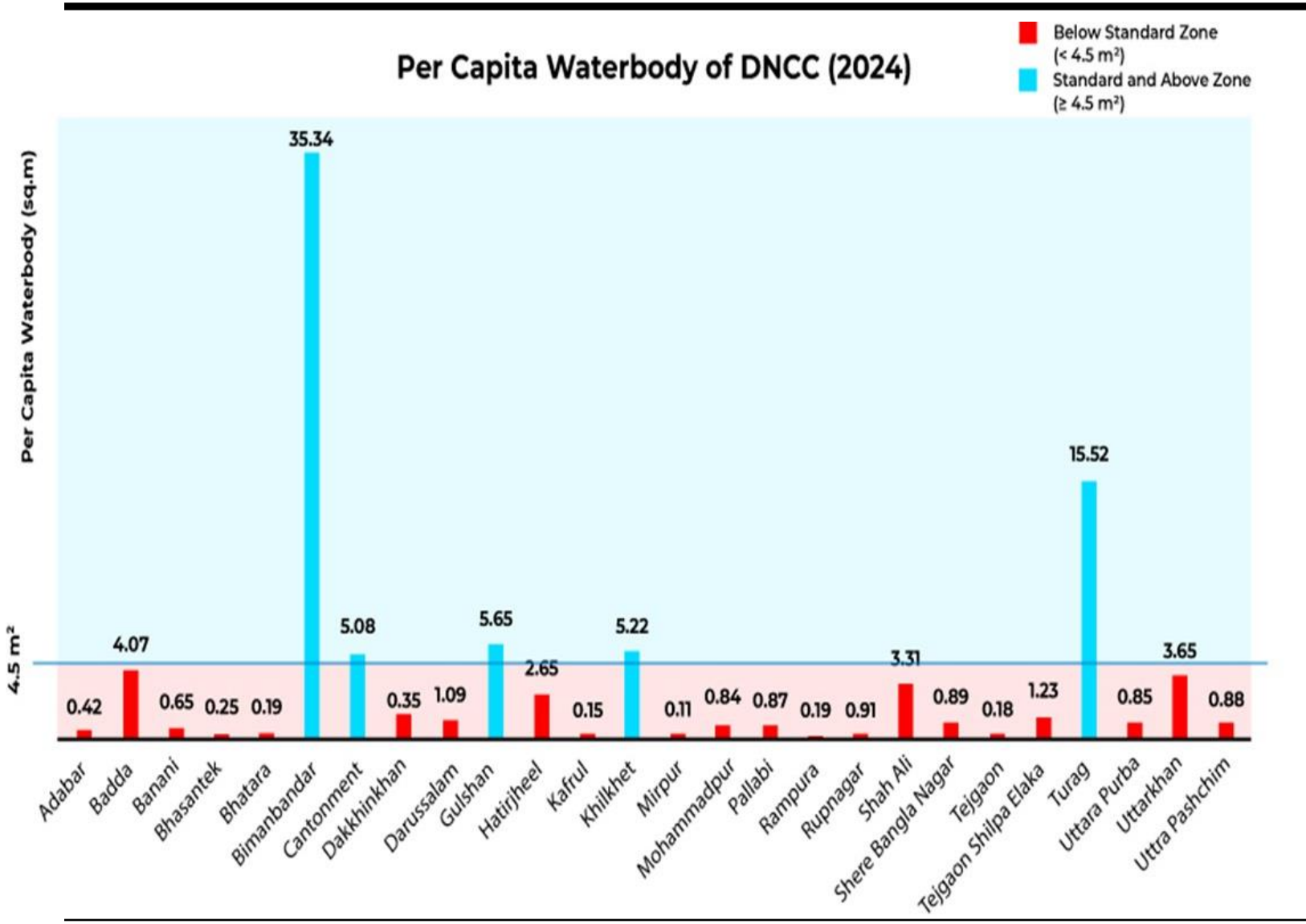
- **Khilgaon (44%), Sabujbag (36%), and Demra (35%)** have the comparatively larger Grass/Agricultural land area in DSCC.
- Older central areas like **Bangshal (1%), Sutrapur (2%), and Wari (2%)** have very little Grass/ Agricultural land.

WATER OR BLUE GOLD?



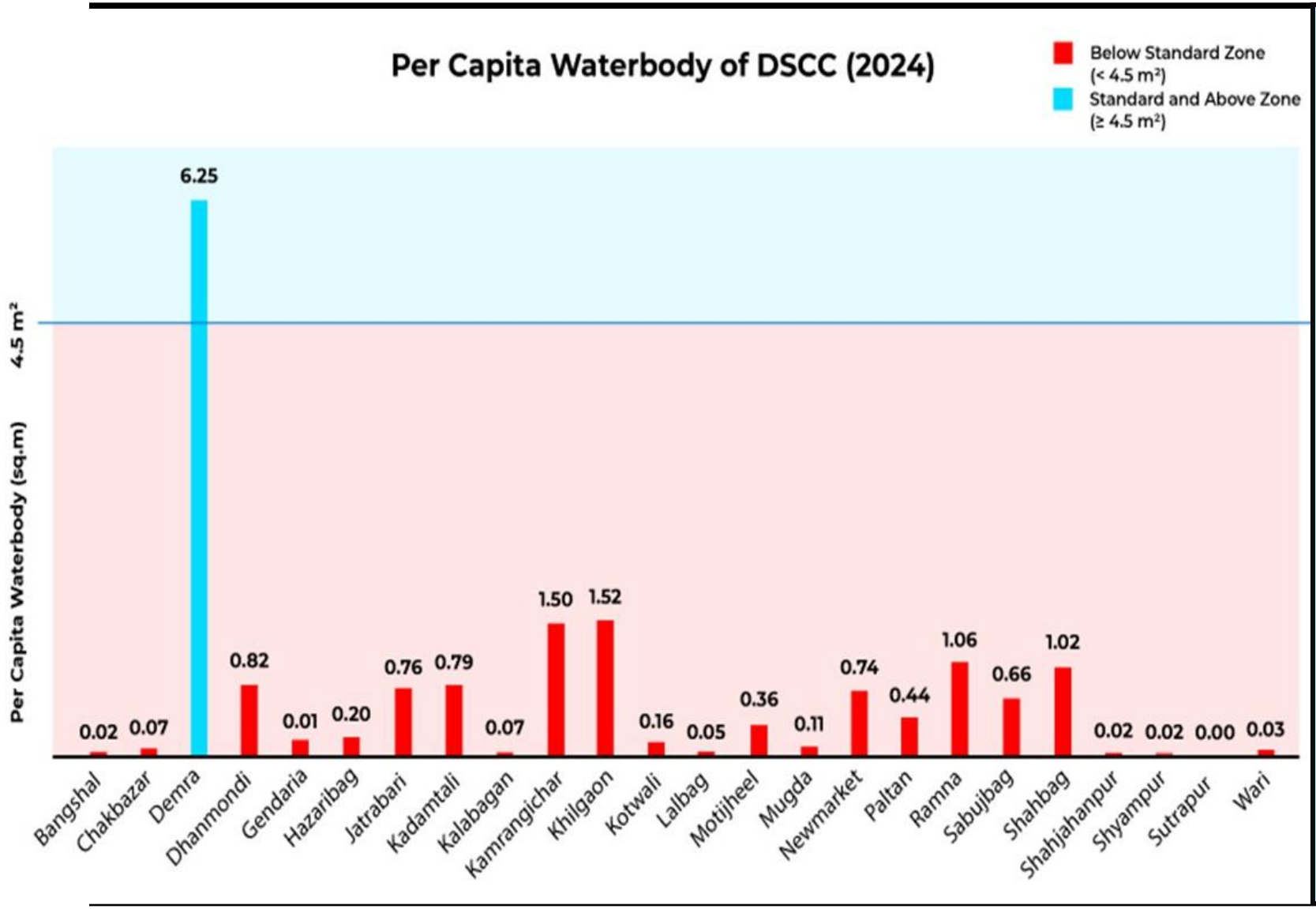
Dhaka's waterbodies have shrunk from 12.3% in 1980 to just 4.8% in 2024





At Present-

- DNCC's average waterbody cover is only **1.79 m²**, 60% lower than minimum standard (**4.5 m²**).
- Only **5 thanas- Bimanbandar (35.34 m²), Turag (15.52 m²), Gulshan (5.65 m²), Khilkhet (5.22 m²) and Cantonment (5.08 m²)** meets minimum standard.
- **21** out of 26 DNCC thanas fall short of the minimum standard.
- **Mirpur (0.11 m²) and Kafrul (0.15 m²)** are nearly dry zones with almost **No Waterbody.**



At Present-

- DSCC's average waterbody cover is just **0.97 m^2 , 78%** lower than **minimum standard (4.5 m^2)**
- Only **Demra (6.25 m^2)** meets minimum standard.
- 23 out of 24 thanas fall short of the minimum standard
- **Sutrapur (0 m^2) and Gendaria (0.01m^2)** approaching to dry zones.

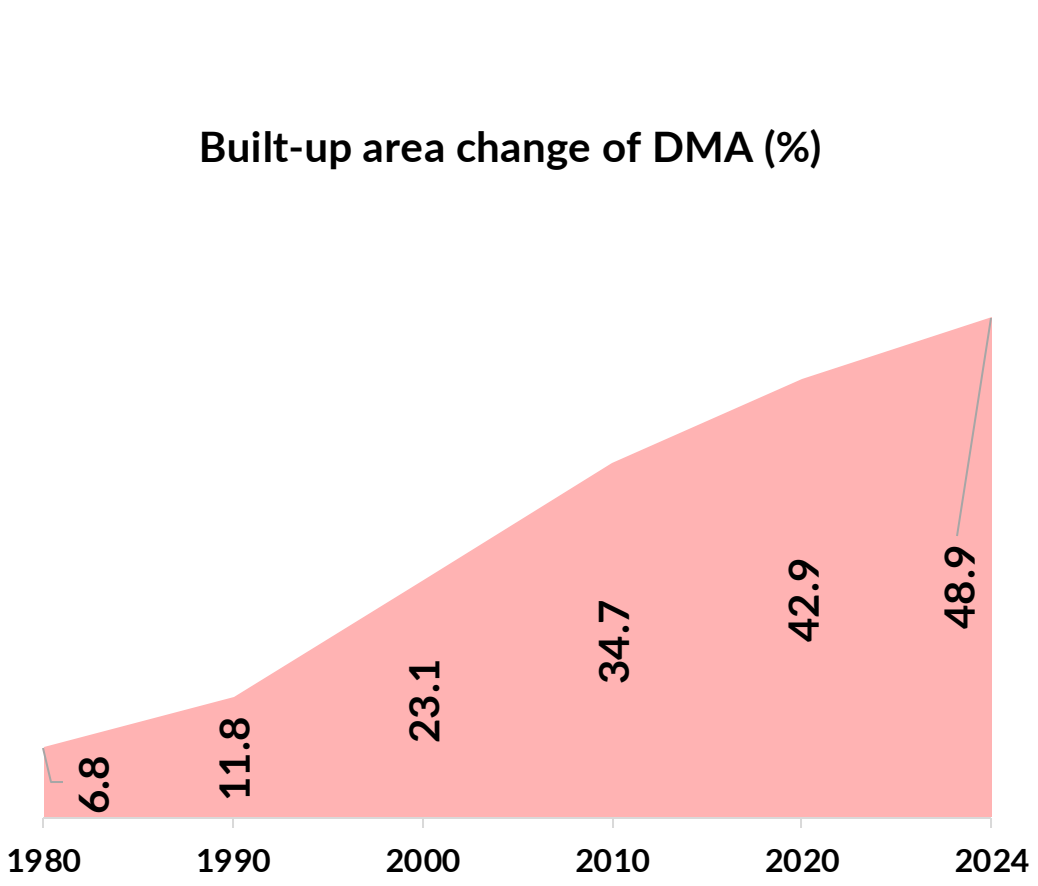
WATERBODIES THAT SURVIVED, ARE THEY USABLE?

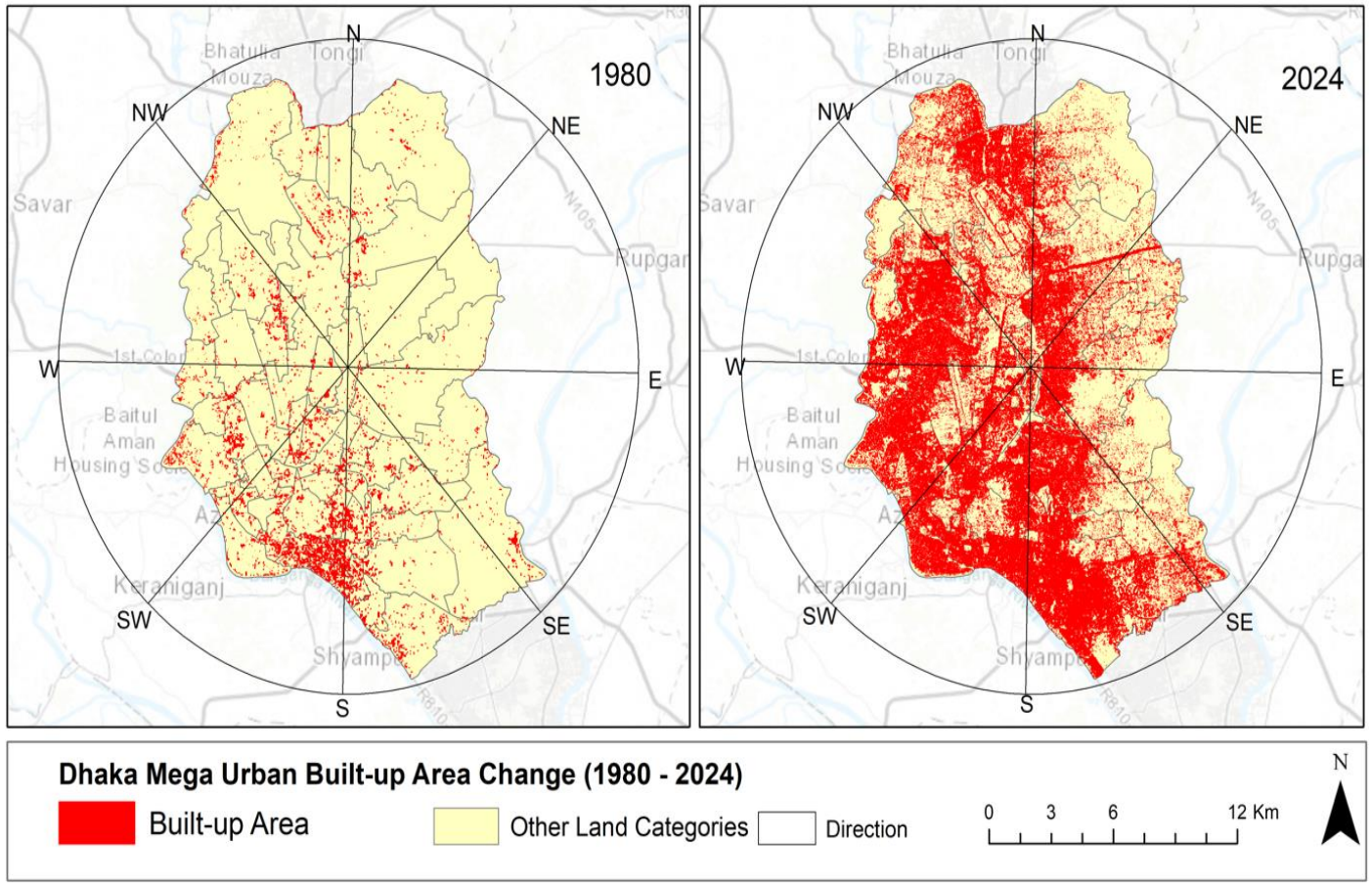
Dhaka's rivers and lakes are widely polluted, with water quality falling below environmental quality standards due to sewage and industrial effluents *(DoE, 2023)*.

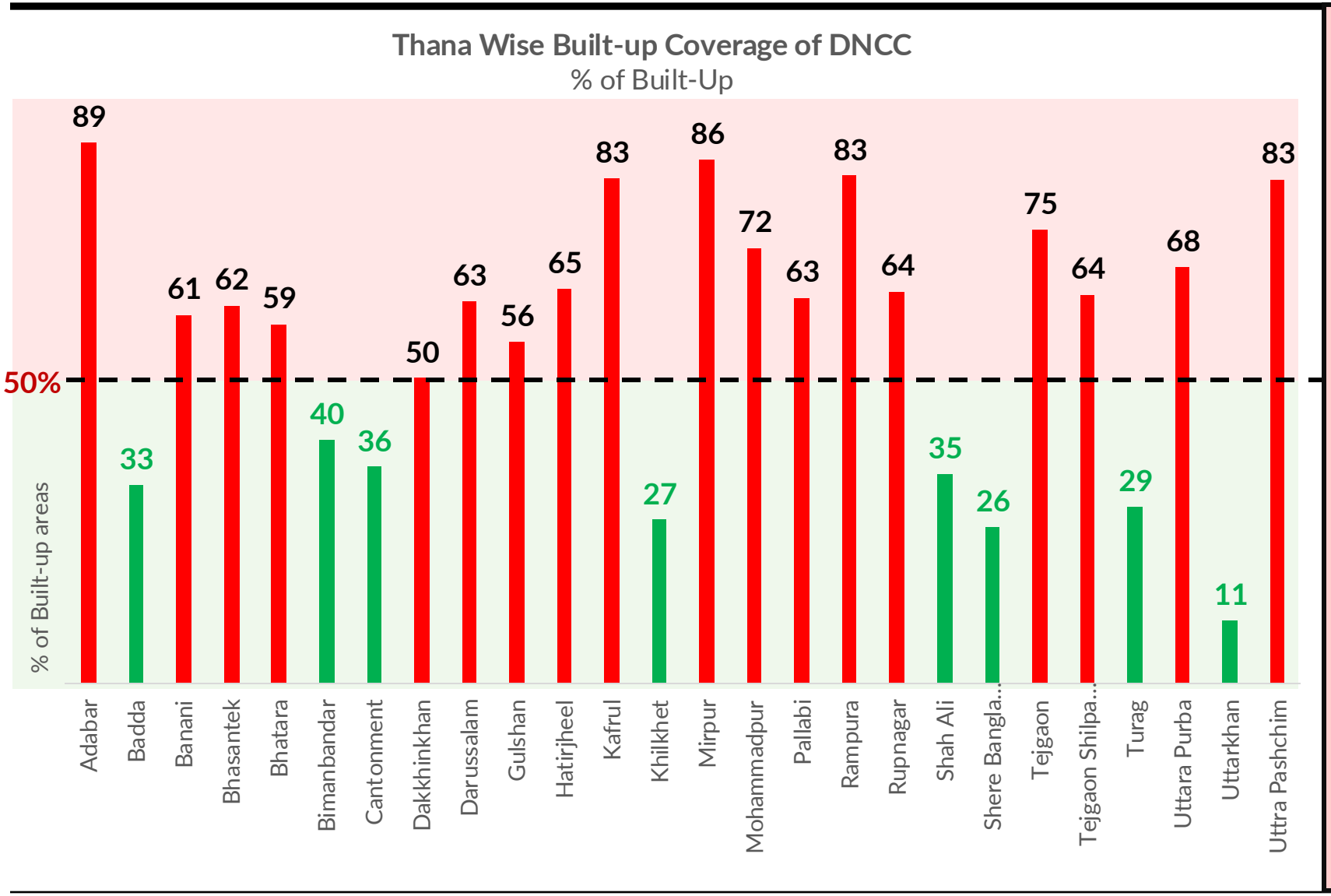
UNPLANNED BUILT-UP AND DEVELOPMENT DESTRUCTION

Built-up area raised from 6.8% in 1980 to 48.9% in 2024.

Approx 1% growth every year

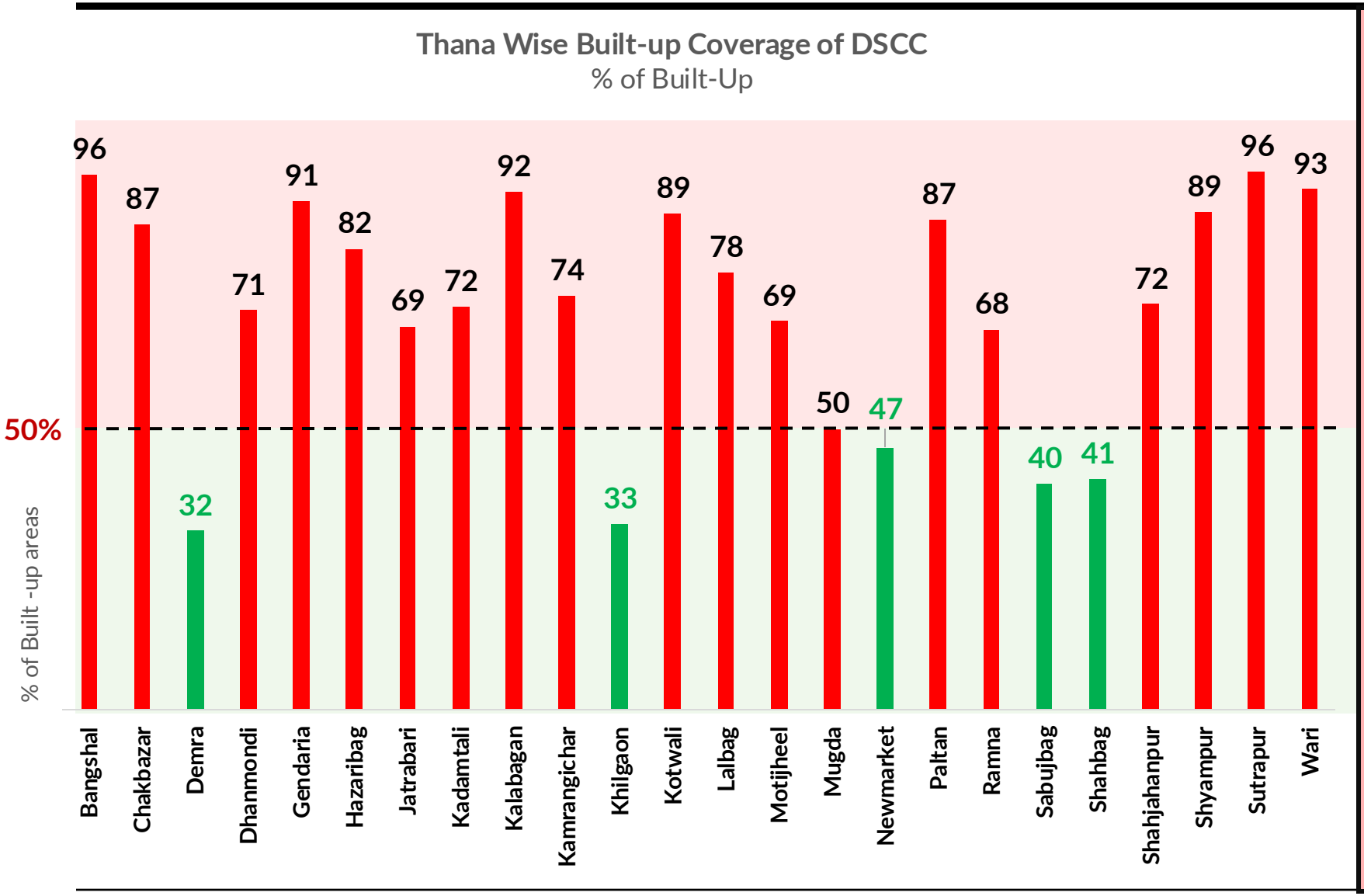






At Present-

- **Only 8 out of 26** DNCC thanas have built-up areas below the maximum standard of 50%.
- Uttarkhan (11%), Shere Bangla Nagar (26%), Khilkhet (27%), Turag (29%), Badda (33%), Shah Ali (35%), Cantonment (36%), and Bimanbandar (40%) are maintained the maximum standard.
- Adabar(89%),Mirpur(86%), Rampura , Uttara Paschim and Kafrul (83%) filled with more than 80% Built-up areas.



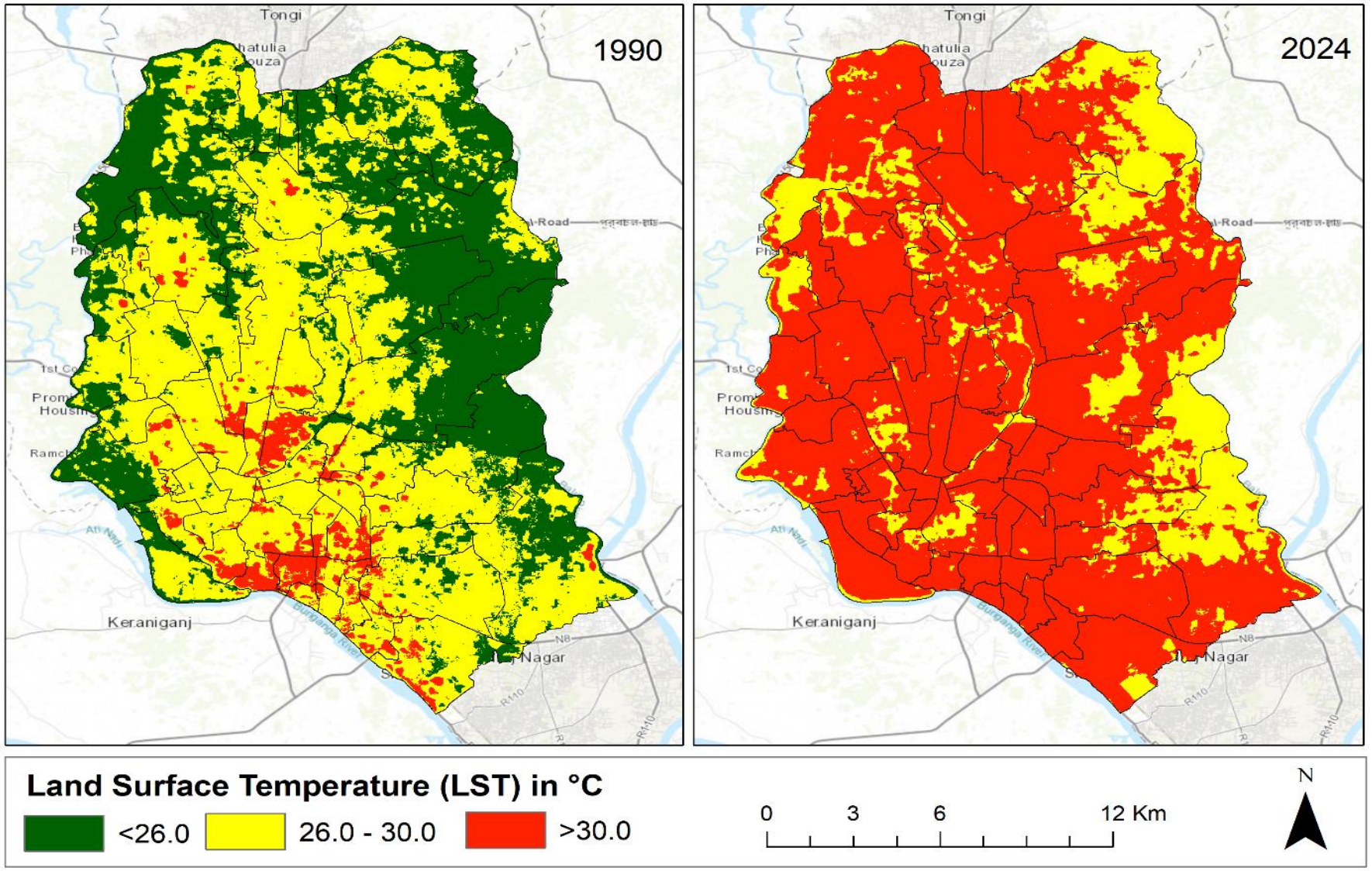
At present-

- **Only 5 out of 24** DSCC thanas thanas have built-up areas below the maximum standard of 50%.
- Demra (32%), Khilgaon (33%), Sabujbag (40%), Shahbag (41%) and Newmarket (47%) are maintained the maximum standard.
- Bangshal and Sutrapur(96%),Wari(93%), Kalabagan(92%) , Dhanmondi (91%), Shyampu and Kotwali(89%), Chalkbazar and Paltan(87%), Hazaribag(82%) filled with more than 80% Built-up areas.

Who Gets to Breathe?

LAND USE RELATION WITH URBAN HEAT

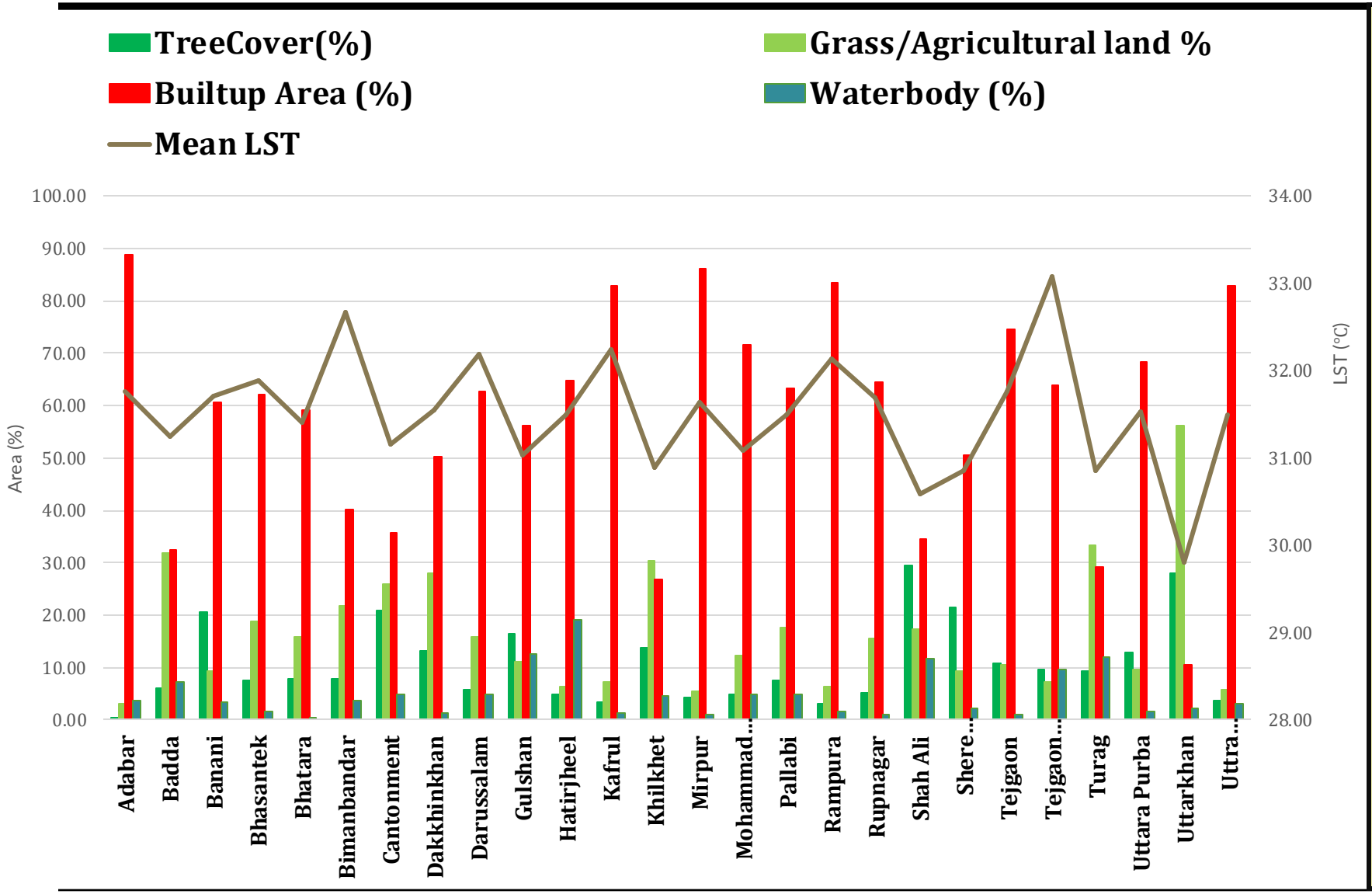
LAND SURFACE TEMPERATURE (LST) ANALYSIS OF DHAKA MEGA CITY



No Thana has temperature below 26°C in 2024 compared to 1990.

By 2024, maximum average annual LST is reached 39.8 °C where in 1990 it was 36.8 °C .

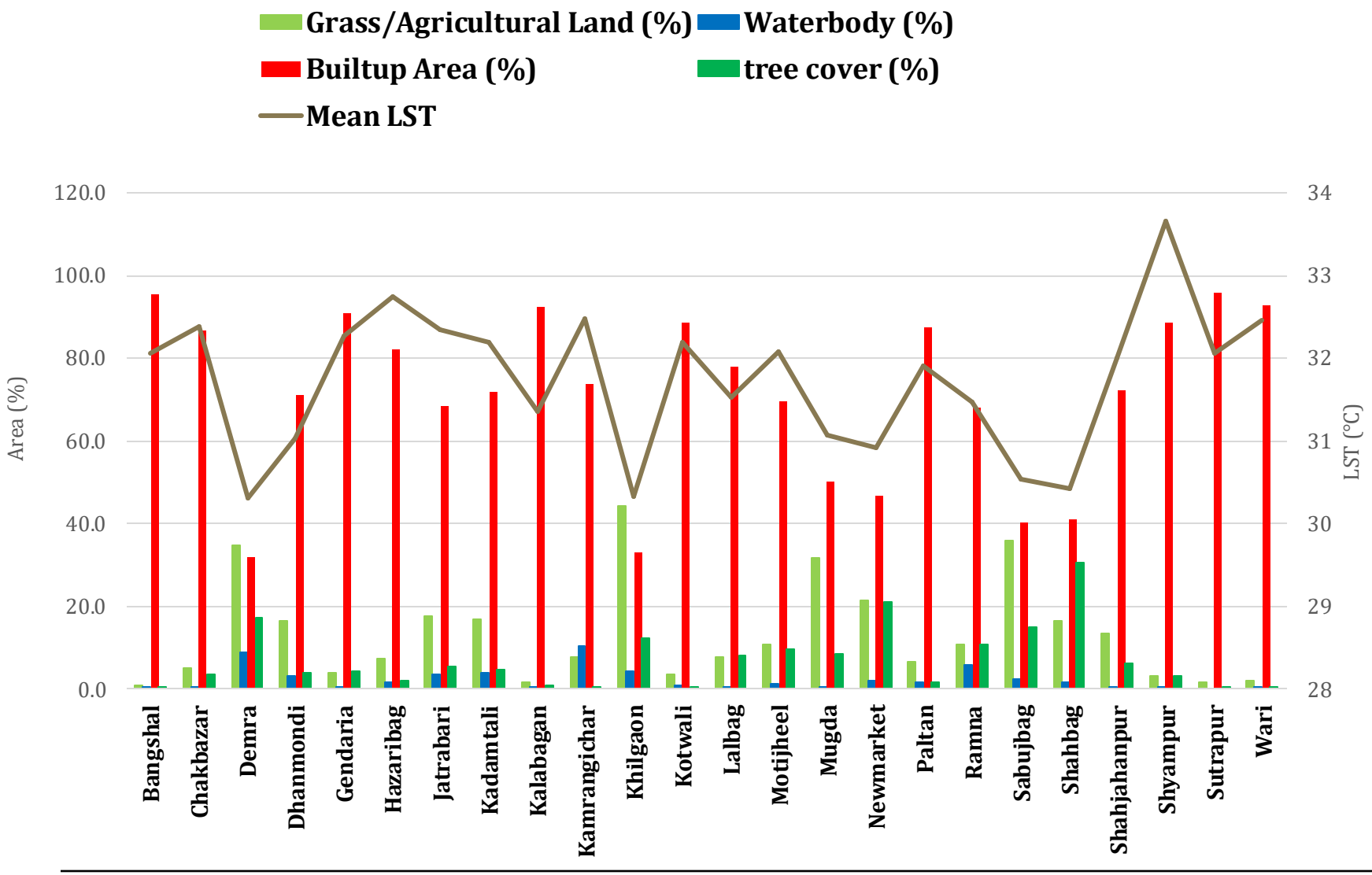
Land Use Relationship with Land Surface Temperature (℃) in DNCC



Currently

- **Tejgaon(33.08** ℃), **Rampura(32.14** ℃), **and Darussalam(32.19** ℃) face high LSTs (above 32°C)
- **Uttarkhan (29.80** ℃), **Shah Ali(30.59** ℃**), and Cantonment(31.16)** remain comparatively cooler (below 31.2°C).

Land Use Relationship with Land Surface Temperature (□) in DSCC



Currently

- **Shyampur (33.65** °C) **and Hazaribag (32.74** °C) face high LSTs (above 32°C)
- **Shahbag(30.42** °C), **Sabujbag(30.53** °C), **and Demra(30.31** °C) remain comparatively cooler (below 31.2°C).

WILL DHAKA COOL IT DOWN: THE 1°C PLAN?

If we can meet the standard for Dhaka-

- 9 m^2 tree cover/person + 4.5 m^2 water/person

can reduce heat → approximately 1.01°C LST reduction (Average)

GROWING EROSION OF NATURAL RIGHTS AT DHAKA

Nature's Right to Exist

- Tree cover declined by nearly half since 1980, shrinking Dhaka's ecological base.
- Built-up areas now dominate the landscape, replacing natural habitats.
- Nature's physical space is steadily being erased by urban expansion.

Nature's Liberty or Freedom

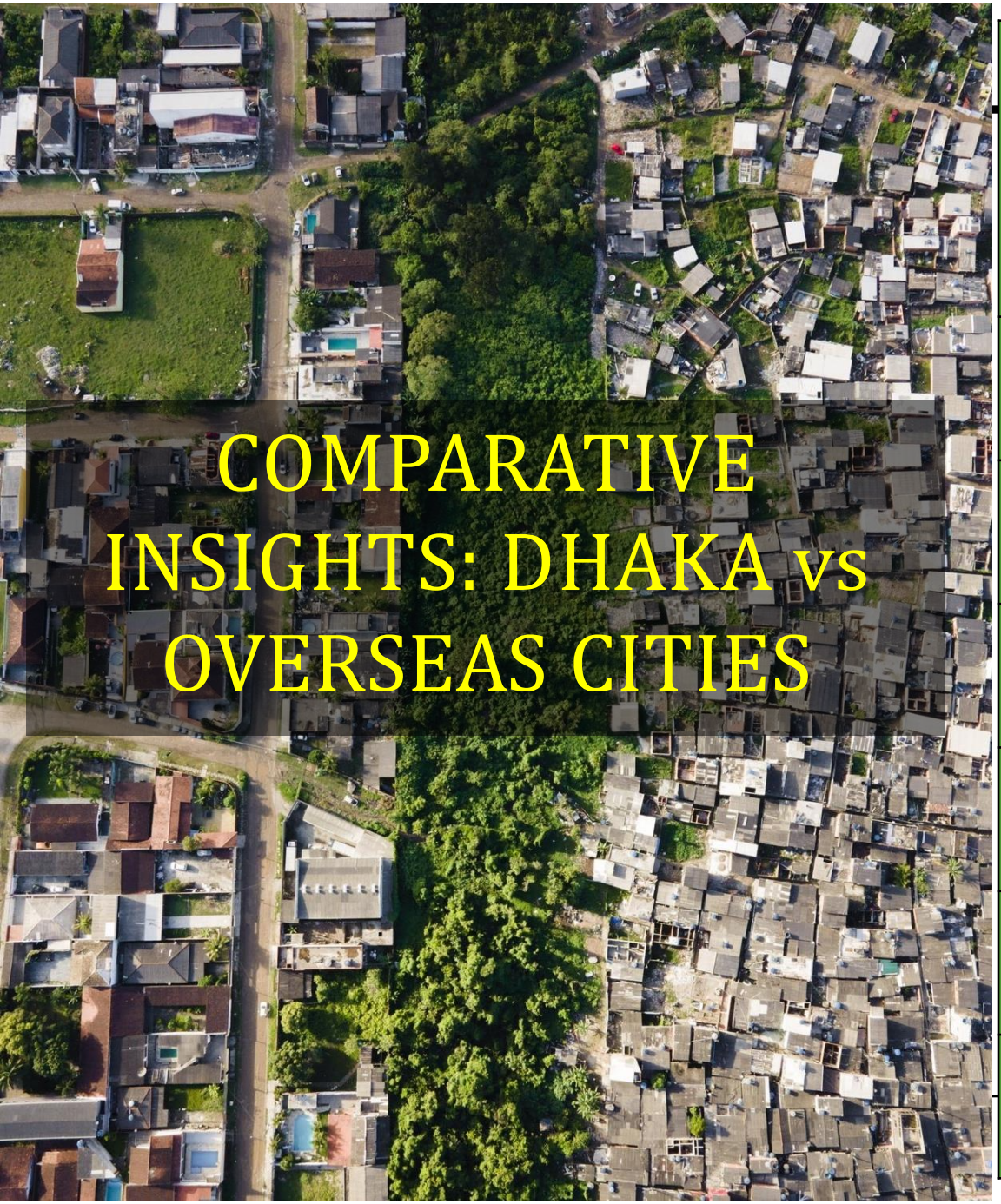
- Waterbodies have lost connectivity and ecological flow.
- Encroachments and engineered barriers restrict natural functions.
- Urban infrastructure increasingly overrides nature's autonomy.

Social Harmony and Justice

- DSCC residents face higher temperatures and lower green access.
- Ecological benefits are unevenly distributed across the city.
- Poorer areas bear greater environmental burdens.

Indigenous Knowledge & Culture

- Traditional wetland-based practices are disappearing.
- Urban growth sidelines local ecological knowledge.
- Cultural ties to nature are weakening with each development shift.



COMPARATIVE INSIGHTS: DHAKA vs OVERSEAS CITIES

City	Existing Built-up (%)	Existing Tree Cover/ Green Space (%)	Existing Water Bodies (%)
Dhaka (2024)	59.1% *	11.6%	4.8%
Singapore	~47%	~47%	~9%
Seoul	55–60%	25–30%	10–12%
Delhi	60-65%	20-23%	~4–6%
Karachi	65–70%	<10%	~3%
Standard	**50%**	**25%**	**15-20%**

The state and community are stewards, not a sovereign over nature.

Emergence of Natural Rights: Pathway to Sustainability

City With Nature	Natural Rights Perspective
Restore Tree Cover (Greener Dhaka)	Trees have a Right to Life and play a vital role in ensuring human dignity through ecosystem services (air quality, cooling, mental health).
Restore and Protect Waterbodies (Blue Infrastructure)	Waterbodies have the Right to Regenerate and support intergenerational equity.
Control Built-Up Saturation	Urban development must respect Freedom from Exploitation—cities can't suffocate their ecological base.
Mitigate Urban Heat through Ecological Infrastructure	Nature has the Right to Provide Climate and Environmental Regulation; denying this harms public health.
Equity in Access to Nature	Access to nature is a justice issue, not a luxury.

- **Dhaka must avoid Karachi's trajectory and instead embrace Singapore's model of nature integration, adapted through local wisdom and equity.**
- The NRLG-aligned recovery plan for Dhaka isn't about cosmetic greenery - it's a structural shift to recognize ecological rights as core to urban sustainability and climate survival.

“Let’s Give Dhaka Its Breath Back.”

“Nature Has Rights. Let’s Honor Them.”

WHAT WE CAN DO (0-3 YEAR)

Actions	Concerned Stakeholders
1. Following the Recent Judgement of International Court of Justice legislate Nature's Rights in Bangladesh.	MoEFCC, MoLGRD, MoLaw, RAJUK, DNCC, DSCC
2. Ban filling of natural forest, canals, ponds, and wetlands and declare such actions as Crime Against Nature	
3. Reform the Detailed Area Plan (DAP) with clear ecological buffers; and declare Urban Ecologically Critical Zones; legally restrict Floor Area Ratio (FAR) in eco-sensitive zones.	
4. Form Community Stewardship (guardianship) Model to Protect Natural Resources	
5. Enact mandatory green zoning and eco-compensation; Embed equity metrics into DAP and zoning laws.	
6. Implement tree census, ecological audit, afforestation zones, green rooftop laws.	
7. Restore 31.2 km^2 of waterbodies.	MoWR, DNCC, DSCC
8. Impose at least 5 times higher Holding Tax for Concrete Structures compare to the same for Nature Friendly Structures	DNCC, DSCC

Medium to Long Terms (3+ Years)

Actions	Concerned Stakeholders
1. Prioritize low-income and high-density areas for nature protection related bio-investment.	MoEFCC, MoLGRD, MoF, DNCC, DSCC
2. Plant 56.5 km^2 of trees, targeting ecologically deprived zones.	DoForest, DNCC, DSCC, DCCI, Community
3. Greening and wetland restoration can lower temperatures by ~1°C.	
4. Reintroduce buffer zones and community water stewardship programs	MoEFCC, MoLGRD, MoLaw, RAJUK, DNCC, DSCC, Private Sectors
5. Prioritize heat-vulnerable zones and water stressed Thanas in climate adaptation.	
6. Digital System Based Natural Accountability of All Stakeholders.	

Restore, Not Beautify – Reclaim Nature's Rights

THE CHOICE IS OURS.

THE TIME IS NOW!

Thank You